

METHOD AND APPARATUS FOR
CONTROLLING ZIPPER TENSION
IN PACKAGING EQUIPMENT

ABSTRACT OF THE DISCLOSURE

Methods and apparatus for controlling the tension of one continuous material (e.g., plastic zipper) with attachments or formed features (e.g., sliders or formed slider end stops) as it is fed to a sealing station, where it is joined to and later pulled by another continuous material (e.g., packaging film). The tension control scheme can be applied in cases wherein the packaging film advances a single package length per advancement as well as cases wherein the packaging film advances a distance equal to multiple package lengths per advancement. A tension control zone is created between a pair of nip rollers disposed in zipper processing equipment and a zipper sealing station inside a thermoforming packaging machine by applying a predetermined torque to one of the nip rollers using a torque control device. The zipper processing equipment may comprise a zipper shaping station and a slider insertion station. The torque control device applies a substantially constant torque that maintains the zipper tension substantially constant in the tension control zone, especially during zipper stomping, slider insertion and zipper sealing.